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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,226	FEE ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-16,18-37,47-64,67,68,70,72-82,84 and 86-104* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1,3,5,16,18,19,31-34,37,53-59,61-64,67,68,70,98-101 and 104* is/are allowed.

6)☒ Claim(s) *6-8,11,20-30,35,36,47-52,60,73-75,87-97,102 and 103* is/are rejected.

7)☒ Claim(s) *9,12-15,76-81,84 and 86* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 10 December 2004 has been entered.

Claim Objections

2. Claims 77, 84, and 86 are objected to because of the following informalities:

Claim 77 recites "a second value of the attribute supplemental signal" (sic) lines 3-4 of the claim. Examiner respectfully suggests that Applicants amend this phrase to "a second value of the attribute *of the* supplemental signal" (emphasis added) for grammatical reasons.

Claim 84 recites "fault indicating means," and claim 86 recites "comparing means" and "fault indicating means." However, claim 82, on which claims 84 and 86 depend, already recites "comparing means" and "fault indicating means." Based on Applicants' specification (particularly in Figure 13), Examiner understands that the comparing means and fault indicating means can perform the limitations recited in claims (i.e., can perform the limitations recited in claim 84 or 86, in addition to those already recited in parent claim 82). However, Examiner respectfully suggests that Applicants amend claims 84 and 86 so that the claims either recite "additional comparing means," or "additional fault indicating means," or a phrase such as "wherein said fault indicating means is further enabled to...," etc., in order to clarify the current recitation of multiple comparing means and fault indicating means.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 60 and 82 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi (US 6,101,010 A).

Regarding claim 60, Konishi discloses in an optical network comprising at least one optical switch (matrix switch 3 including a switch element 31 in Figure 2), a method for determining optical path integrity, comprising the steps of:

providing, to a first port of the optical switch, at least one optical signal having associated therewith at least one supplemental signal, wherein the one supplemental signal includes a modulation applied to the one optical signal (using the transmitter 1 and modulator 2 in Figure 1; column 2, lines 16-36);

directing the optical switch to couple the first port to a second port of the optical switch;

at the second port, detecting the supplemental signal and determining a first detected value for at least one attribute of the supplemental signal (using o/e converter 421 and variable band-pass filter 431 to sense the attribute; column 3, lines 6-15);

at the second port, detecting the supplemental signal and determining a second detected value for the attribute of the supplemental signal, wherein the second detected value is determined at a different time than the first detected value (again the same detecting elements);

and

determining whether the carrying of the optical signal in the network has varied based at least upon comparison of the first detected value to the second detected value.

Konishi discloses that the supplemental signal may be detected and examined repeatedly during the operation of the switch (column 3, lines 19-30). It would be well understood that Konishi discloses that the user may determine that the carrying of the optical signal in the network has varied based at least upon comparison of the first detected value to the second detected value (i.e., if a second detected value indicated an error, while the earlier first detected value did not, a user would determine that an error had occurred since the detecting of the first value, and that the carrying of the signal had "varied").

Regarding claim 82, Konishi discloses an optical switch (matrix switch 3 including a switch element 31 in Figure 2) facilitating the verification of optical path integrity, comprising a plurality of optical signal ports and at least one optical switching means 31 for causing an optical signal incident along a first optical signal port to be transmissively coupled to a second optical signal port, the optical switch further comprising:

a supplemental signal injecting means (including modulator 21 in Figure 1) coupled to an optical line associated with the first optical signal port for adding a supplemental signal associated with the optical signal, wherein the supplemental signal includes a modulation applied to the optical signal (column 2, lines 17-36);

a supplemental signal detecting means (including o/e converter 421, variable band-pass filter 431, and detector 441 in Figure 2) coupled to a second optical line associated with the second signal port for detecting the supplemental signal associated with the optical signal;

comparing means (detector 441) for comparing the supplemental signal as injected by the supplemental signal injecting means to the supplemental signal as detected by the supplemental signal detecting means (column 3, lines 15-18); and

fault indicating means (alarm processing circuit 46) coupled to the comparing means for issuing a fault indication based at least upon whether the detected supplemental signal is substantially consistent with the injected supplemental signal (column 3, lines 19-32).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6-8, 10-11, 47, 48, and 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi in view of Shiragaki (US 5,457,556 A).

Regarding claims 6 and 73, Konishi discloses an optical switch (matrix switch 3 including switch element 31 in Figure 2) facilitating the verification of optical path integrity, comprising a plurality of optical signal ports and at least one optical switching element 31 for causing an optical signal incident along a first optical signal port to be transmissively coupled to a second optical signal port, the optical switch further comprising:

a supplemental signal detector/detecting means (including o/e converter 421, variable band-pass filter 431, and detector 441 in Figure 2) coupled to the second optical signal port for detecting a supplemental signal associated with the optical signal.

Konishi also discloses that the supplemental signal includes a modulation applied to the

optical signal (column 2, lines 17-36).

Konishi does not specifically disclose another (i.e., a "first") supplemental signal detector/detecting means coupled to the first optical signal port for detecting the supplemental signal associated with the optical signal.

However, Shiragaki teaches an optical switch (Figure 2), similar to the one in the system disclosed by Konishi., and further including detecting means (fault detector 26) coupled to the first and second optical signal ports on opposite sides of the switch for detecting attributes of the signal. It would have been obvious to a person of ordinary skill in the art to include another supplemental signal detector as taught by Shiragaki in the system disclosed by Konishi in order to provide further fault detection in the system and more thorough information to users about where faults may be located in the switch system.

Regarding claims 7 and 74, Konishi discloses a supplemental signal detector including detector 441 (i.e., a means for determining) that determines information about at least one attribute of the detected supplemental signal and the optical switch issues a fault indication if the attribute does not meet an expected criterion (i.e., they disclose fault indicating means; column 3, lines 19-32), but Konishi does not specifically having a first such detector coupled to the first port. Again, Shiragaki teaches detecting signals at the first port of a similar optical switch. It would have been obvious to a person of ordinary skill in the art to include another supplemental signal detector as taught by Shiragaki in the system disclosed by Konishi in order to provide further fault detection in the system.

Regarding claim 10, Konishi discloses that the optical switch receives information about at least one attribute of the detected supplemental signals from a supplemental signal detector

(including detector 441) and issues a fault indication if the attribute for this supplemental signal does not meet an expected criterion (column 3, lines 19-32). Again, Konishi does not specifically disclose a first such supplemental signal detectors coupled to the first port of the switch. However, Shiragaki teaches an optical switch (Figure 2), similar to the one in the system disclosed by Konishi and further including detecting means (fault detector 26) coupled to the first and second optical signal ports on opposite sides of the switch for detecting attributes of the signal. Again, it would have been obvious to a person of ordinary skill in the art to include another supplemental signal detector as taught by Shiragaki in the system disclosed by Konishi in order to provide further fault detection in the system and more thorough information to users about where faults may be located in the switch system.

Regarding claims 8 and 11, Konishi in view of Shiragaki suggest a system as discussed above with regard to claims 6, 7, and 10 above, including issuing a fault indication based on a criterion. Similarly, regarding claim 75, Konishi in view of Shiragaki suggest a system as discussed above with regard to claims 73 and 74. Konishi do not explicitly disclose that the criterion is affected by information from a source outside of the optical switch, but it would be well understood that the criterion may be predetermined by a user of the system (i.e., a "source") as desired. In other words, a user of the system may decide what conditions or criteria must exist before the system issues a fault indication in the manner disclosed by Konishi

Regarding claims 8, 11, and 75, it would have been obvious to a person of ordinary skill in the art to specifically indicate that the criterion in the system suggested by Konishi in view of Shiragaki is affected by information from a source outside of the optical switch, simply so that the user can adjust the system to register the faults properly. It also would have been obvious to a

person of ordinary skill in the art to include communicating means of some sort in order to allow the user to provide the proper input to the system for adjusting the criterion.

Regarding claim 47, Konishi discloses in an optical network comprising at least one optical switch (matrix switch 3 including switch element 31 in Figure 2), a method for verifying optical signal routing comprising the steps of:

providing in the network at least one optical signal having at least one detectable attribute, wherein the detectable attribute is associated with a modulation applied to the optical signal (using modulator 21 in Figure 1);

determining a first value corresponding to the detectable attribute at the first port of the optical switch (the predetermined threshold based on the originally transmitted supplemental signal; column 3, lines 15-18);

at the second port of the optical switch, detecting the detectable attribute and determining a second detected value for the detectable attribute (using o/e converter 421, variable band-pass filter 43, and detector 441);

determining whether the first port is optically coupled to the second port based upon whether the first detected value agrees with the second detected value (column 3, lines 15-32).

Regarding claim 48 in particular, Konishi discloses that the detectable attribute relates to a supplemental signal associated with the optical signal and discloses detecting the supplemental signal, albeit only at the second port of the switch.

Again, Konishi does not specifically additionally detecting the detectable attribute and determining a first detected value for the detectable attribute at the first port of the switch, but Shiragaki et al. teach detecting values of a signal on both sides of an optical switch (Figure 2). It

would have been obvious to a person of ordinary skill in the art to include another supplemental signal detector as taught by Shiragaki in the system disclosed by Konishi in order to provide further fault detection in the system and more thorough information to users about attributes of the signal at various locations. Shiragaki clearly teaches that monitoring both the first/input and second/output ports of an optical switch enables a user to determine a location of a fault (column 5, lines 50-66); it would be well understood in the art that in the arrangement taught by Shiragaki, a user would determine that the first port is not properly coupled to the second port if the first detected value disagrees with the second detected value.

7. Claims 27-30 and 94-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi in view of Fatehi et al. (US 5,892,606 A).

Regarding claims 27 and 94, Konishi discloses an optical switch facilitating the verification of optical path integrity (matrix switch 3 including switch element 31 in Figure 2), comprising a plurality of optical signal ports and an optical switching matrix 31 (i.e., an optical switching means) for causing an optical signal incident along a first optical signal port to be transmissively coupled to a second optical signal port, wherein the optical signal has an associated first supplemental signal originating outside of the optical switch, wherein the first supplemental signal includes a modulation applied to the optical signal (using modulator 21 in Figure 1).

Konishi does not specifically disclose supplemental signal modifying means coupled to a first optical line associated with the first optical signal port, for changing the first supplemental signal into a second supplemental signal associated with the optical signal.

However, Fatehi et al. teach that signals may be modified during transmission (Figures 1-

3; column 4, lines 53-65) as desired to provide additional supplemental signals for monitoring the system. It would have been obvious to a person of ordinary skill in the art to include supplemental signal modifying means as taught by Fatehi et al. in the system disclosed by Konishi for modifying the incoming supplemental signal already disclosed to include further supplemental signal information in order to monitor further aspects of the system as desired.

Regarding claims 28 and 95, Konishi discloses a supplemental signal detector/detecting means (including o/e converter 421, variable band-pass filter 43, and detector 441) coupled to the second signal port for detecting at least one supplemental signal associated with the optical signal.

Regarding claims 29 and 96, Konishi discloses that the supplemental signal detector detects the supplemental signal and disclose fault indicating means for issuing a fault indication depending at least upon whether the signal meets an expected criterion (column 3, lines 15-32).

Regarding claim 30, Konishi discloses that the optical switch determines the value of at least one attribute of the supplemental signal as it enters the first port of the switch and receives information from the supplemental signal detector 441 about the value of the attribute detected in the supplemental signal and issues a matrix fault indication depending at least upon whether the detected value of the attribute agrees with the value originally imparted to the first port of the switch (column 3, lines 15-32).

Similarly, regarding claim 97, Konishi discloses comparing means for comparing a first value for at least one attribute of the supplemental signal as it enters the first port of the switch to a second value of the attribute as detected by the supplemental signal detecting means 441; and fault indicating means coupled to the comparing means for issuing a fault indication based at

least upon whether the second value is substantially consistent with the first value (column 3, lines 15-32).

Regarding both claims 30 and 97, Konishi does not specifically disclose that the first value of the attribute is determined by a supplemental signal modifying means prior to entering the first port of the switch, but again Fatehi et al. teach that signals may be modified during transmission (Figure 2; column 4, lines 53-65) as desired to provide additional supplemental signals for monitoring the system. It would have been obvious to a person of ordinary skill in the art to include supplemental signal modifying means as taught by Fatehi et al. in the system disclosed by Konishi for modifying the incoming supplemental signal already disclosed to include further supplemental signal information in order to monitor further aspects of the system as desired. In the system thus suggested by Konishi in view of Fatehi et al, the signal entering the first port of the switch would be modified, and the detector (including detector 441) disclosed by Konishi would therefore operate by comparing the detected value with the modified value entering the switch in order to properly determine any changes in the signal as it passes through the switch.

8. Claims 35, 36, 102, and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi in view of Fatehi et al. as applied to claims 27 and 94, respectively, above, and further in view of Shiragaki.

Regarding claims 35 and 102, Konishi in view of Fatehi et al. suggest a system as discussed above with regard to claims 27 and 94 above, respectively, including detecting an attribute of the supplemental signal and issuing a fault indication depending upon whether the attribute meets an expected criterion (Konishi, column 3, lines 15-32). They do not specifically

suggest that the first supplemental signal may be detected at the supplemental signal modifier/modifying means (i.e., before entering the first port of the switch). However, Shiragaki teaches an optical switch (Figure 2), similar to the one in the system disclosed by Konishi, and further including detecting means (fault detector 26) coupled to the first and second optical signal ports on opposite sides of the switch for detecting attributes of the signal. It would have been obvious to a person of ordinary skill in the art to include another supplemental signal detector at the first port of the switch such as suggested by Shiragaki in the system suggested by Konishi in view of Fatehi in order to provide further fault detection in the system and more thorough information to users about where faults may be located in the switch system.

Regarding claims 36 and 103, Konishi does not explicitly disclose that the criterion is affected by information from a source outside of the optical switch, but it would be well understood that the criterion may be predetermined by a user of the system (i.e., a "source") as desired. In other words, a user of the system may decide what conditions or criteria must exist before the system issues a fault indication in the manner disclosed by Konishi. It would have been obvious to a person of ordinary skill in the art to specifically indicate that the criterion in the system described by Konishi in view of Fatehi et al. and Shiragaki is affected by information from a source outside of the optical switch, simply so that the user can adjust the system to register the faults properly. It also would have been obvious to a person of ordinary skill in the art to include communicating means of some sort in order to allow the user to provide the proper input to the system for adjusting the criterion.

9. Claims 20-26, 49-52, and 87-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerstel et al. (US 5.867.289 A) in view of Fee (US 6,108,113 A).

Regarding claims 20 and 87, Gerstel et al. disclose an optical switch (Figure 2) facilitating the verification of optical path integrity, comprising a plurality of optical signal ports and at least one optical switching element 204 for causing an optical signal incident along a first optical signal port to be transmissively coupled to a second optical signal port, the optical switch further comprising:

a supplemental signal injector/injecting means 201 coupled to the first optical signal port for adding a supplemental signal associated with the optical signal (i.e., the "second supplemental signal," as recited in the claims).

Gerstel et al. does not specifically disclose that the optical signal has an associated other supplemental signal (i.e., a "first supplemental signal," as recited in the claims) originating outside of the optical switch.

However, Fee teaches that a signal in an optical network may include an associated supplemental signal (Figure 9 shows how ancillary data 905 can be introduced as a first supplemental signal to an optical signal). Fee also discloses that this first supplemental signal includes a modulation applied to a main optical signal (column 11, lines 22-55). Fee further discloses that this first supplemental signal may be used to provide many different types of supplemental information as desired (column 13, lines 29-60).

For clarity, Examiner respectfully notes that claim 20 includes limitations regarding two supplemental signals; Fee teaches providing a "first" supplemental signal including a modulation applied on an optical signal, while Gerstel et al. disclose a "second" supplemental signal provided by a signal injector coupled to the switch.

Regarding claims 20 and 87, it would have been obvious to a person of ordinary skill in

the art to include a first supplemental signal as taught by Fee in the system disclosed by Gerstel et al. in order to include further supplemental information in the signal as desired while providing a second supplemental signal specifically for monitoring the operation of the switch (as disclosed by Gerstel et al.).

Regarding claims 21 and 88, Gerstel et al. disclose a supplemental signal detector/detecting means 210 coupled to the second signal port for detecting at least one of the supplemental signals associated with the optical signal.

Regarding claims 22, 89, and 90, Gerstel et al. disclose that the optical switch determines the value of at least one attribute of the second supplemental signal injected by the supplemental signal injector (column 4, lines 35-39) and receives information from the supplemental signal detector about the value of the attribute detected in the second supplemental signal and issues a fault indication based upon whether the value of the detected attribute value agrees with the value of the attribute imparted by supplemental signal injector (i.e., the expected value of the attribute; column 6, lines 30-43; column 7, lines 3-18). Regarding claims 89 and 90 in particular, it would be well understood that Gerstel disclose means for perform the above functions, i.e., comparing means for determining whether the detected and expected values agree and fault indication means.

Regarding claim 23, Gerstel et al. disclose detecting a supplemental signal and issuing a fault indication if it does not meet an expected criterion, but again, they do not specifically disclose two supplemental signals. However, again Fee teaches including a supplemental signal for carrying additional information, and Fee further teaches detecting this signal and issuing a fault indication or warning based on it if necessary (column 14, lines 13-19). It would have been

obvious to a person of ordinary skill in the art to include and detect a first supplemental signal and provide additional associated fault indications as taught by Fee in the system disclosed by Gerstel et al. in order to use both supplemental signals to provide different information about faults in the system.

Regarding claims 24 and 91, it would have been obvious to a person of ordinary skill in the art to ensure that the supplemental signals were different from each so that they could be separately used for providing different information. Also, Fee teaches that the first supplemental signal may be provided as a subcarrier signal on the main signal, while Gerstel et al. disclose injecting a second supplemental signal having a different wavelength from the main signal, and it would be well understood that the two methods would create signals distinguishable from each other.

Regarding claims 25 and 92, again, Gerstel et al. disclose a supplemental signal detector, but they do not specifically disclose a first supplemental signal other than the one injected by the injector 201, and therefore, they do not specifically disclose detecting such a signal. However, Fee further teaches a first supplemental signal and teaches detecting it and causing a fault indication to be issued depending on whether the first supplemental signal meets an expected criterion, using fault indicating means (column 14, lines 13-19). Regarding claim 25 and 92, it would have been obvious to a person of ordinary skill in the art to include and detect a first supplemental signal and provide additional associated fault indications as taught by Fee in the system disclosed by Gerstel et al. in order to use both supplemental signals to provide different information about faults in the system.

Regarding claims 26 and 93, Gerstel et al. disclose that the detector detects the second

supplemental signal (the one injected by injector 201) and causes a fault indication to be issued depending on whether the second supplemental signal meets an expected criterion, using fault indicating means (column 6, lines 30-43; column 7, lines 3-18).

Regarding claim 49, Gerstel et al. disclose in an optical network comprising at least one optical switch (Figure 2), a method for verifying optical path integrity comprising the steps of:

providing within the network at least one optical signal (via incoming line 106);

directing the network to route the optical signal to a first port of the optical switch (switch 204);

at a point before the optical signal enters a first port, adding a supplemental signal associated with the optical signal, wherein the supplemental signal includes a modulation applied to the optical signal (driver 201 modulates light source 202 with the supplemental signal);

directing the optical switch to couple the first port to a second port of the optical switch;

at the second port of the optical switch, detecting a supplemental signal (using wavemeter 210); and

responsive to the detection of a supplemental signal, determining optical path integrity in the optical network (column 5, lines 12-34).

Gerstel et al. do not specifically disclose that the at least one optical signal has associated therewith at least one first supplemental signal other than the supplemental signal that is added at a point before the signal enters a first port. However, again, Fee teaches that a signal in an optical network may include an associated supplemental signal (Figure 9 shows how ancillary data 905 can be introduced as a first supplemental signal to an optical signal). Fee also discloses that this first supplemental signal includes a modulation applied to a main optical signal (column 11, lines

22-55). Fee further discloses that this first supplemental signal may be used to provide many different types of supplemental information as desired (column 13, lines 29-60). It would have been obvious to a person of ordinary skill in the art to include a first supplemental signal including a first modulation as taught by Fee in the system disclosed by Gerstel et al. in order to include further supplemental information in the signal as desired while providing a second supplemental signal specifically for monitoring the operation of the switch (as disclosed by Gerstel et al.).

Regarding claim 50, it would have been obvious to a person of ordinary skill in the art to ensure that the supplemental signals were different from each so that they could be separately used for providing different information. Also, Fee teaches that the first supplemental signal may be provided as a subcarrier signal, while Gerstel et al. disclose injecting a second supplemental signal having a different wavelength from the main signal, and it would be well understood that the two methods would create signals distinguishable from each other.

Regarding claim 52, Gerstel et al. disclose establishing a first value of at least one attribute of the second supplemental signal;

at the second port, selectively detecting the second supplemental signal and determining a second value of attributes; and

determining whether the optical signal is correctly routed based upon whether the first value agrees with the second value.

In other words, Gerstel et al. disclose establishing a first, expected value for the second supplemental signal, detecting the signal at the second port and determining the "actual" detected value, and determining whether the optical signal is correctly routed based upon whether the

expected value agrees with the second value (column 7, lines 9-11).

Regarding claim 51 in particular, Gerstel et al. disclose a supplemental signal detector, but they do not specifically disclose a first supplemental signal other than the one injected by the injector 201, and therefore, they do not specifically disclose detecting such a signal. However, Fee further teaches a first supplemental signal and teaches detecting it and causing a fault indication to be issued depending on whether the detected value of the first supplemental signal agrees with an established expected value (column 14, lines 13-19). It would have been obvious to a person of ordinary skill in the art to include and detect a first supplemental signal and provide additional associated fault indications as taught by Fee in the system disclosed by Gerstel et al. in order to use both supplemental signals to provide different information about faults in the system.

Allowable Subject Matter

10. Claims 1, 3, 5, 16, 18, 19, 31-34, 37, 53-59, 61-64, 67, 68, 70, 72, 98-101, and 104 are allowed. Examiner notes that claims 31-34, 37, 53-59, 98-101, and 104 were already indicated allowable in previous Office Actions.

11. Claims 9, 12-15, 76-81, 84, and 86 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicants' arguments filed 10 December 2004, with respect to the specific combination of Konishi in view of Shiragaki used to previously reject claims 4, 9, 12-15, 65, 71, and 76-81 have been fully considered and are persuasive. The rejections of claims 9, 12-15, and 76-81 has

been withdrawn, and newly amended claims 1, 61, and 68, which correspond to the old claims 4, 65, and 71 respectively, have also been indicated allowable along with their dependent claims.

In general, Applicants' arguments with respect to the specific combination of Konishi in view of Shiragaki used to previously reject claims 4, 9, 12-15, 65, 71, and 76-81 are persuasive because those particular claims recited actually detecting different values of a supplemental signal (either at different times, or at different ports of the optical switch), and further recited issuing a fault indication based on a comparison of or a difference value between those different values. Other claims that are still currently rejected, although they may appear to recite similar limitations, do not specifically include all the features of the claims indicated allowable.

13. Regarding claim 60, rejected under 35 U.S.C. 102(b) as being anticipated by Konishi, Examiner respectfully notes that claim 60 is a method claim that recites a step of "determining whether the carrying of the optical signal the network has varied based at least upon comparison of the first detected value to the second detected value." The claim does not specifically recite any particular element that compares the first detected value to the second detected value and makes a determination of whether the carrying of the optical signal the network has varied. Examiner respectfully maintains that any system generally designed to continually monitor the operation of an element, such as disclosed by Konishi, inherently provides the user with some indication of a change based on a comparison of the situation at one point in time versus the situation at another point in time. In other words, Konishi discloses determining (by the user) that the situation has "varied" based upon a comparison of values detected at different times, as recited in claim 60.

Examiner notes that claim 1 (and the previous version of claim 4, now canceled) specifically recites that "*the optical switch*...issues a fault indication if the attribute does not meet an expected criterion [based upon at least one previous detected value of the attribute]" (emphasis added).

Examiner also respectfully disagrees with Applicants assertion on page 28 of their response that the previous rejection of claim 4 appear to contradict Examiner's rejection of claim 60, because Konishi does not teach a supplemental signal detector at a first (input) port of the optical switch as recited in some claims and therefore, Examiner has relied on the teachings of Shiragaki. However, claim 60, unlike some of the other claims, recites determining a first detected value and a second detected value determined at a different time than the first detected value at the *second* port only. The features upon which Applicants rely (i.e., detecting a supplemental signal at the first port) are not recited in the claim 60. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

14. Regarding claim 82, also rejected under 35 U.S.C. 102(b) as being anticipated by Konishi, Examiner respectfully notes that Applicants did not address or argue the previous rejection of claims 82-86 in their response, although amended claim 82 incorporates the limitations of claims 83 and 85. Examiner notes that claim 82 only recites "comparing means for comparing the supplemental signal as injected by the supplemental signal injecting means to the supplemental signal as detected by the supplemental signal detecting means" and does not specifically recite a means for actually detecting the supplemental signal in a way as to determine the supplemental signal as injected by the supplemental signal injecting means (such

as generally recited in some other claims). Claims 84 and 86, however, now recite limitations regarding the fault indicating means and/or comparing means in addition to those already recited in claim 82 and therefore contain allowable subject matter.

15. Regarding claims 20-26, 49-52, and 87-93, rejected under 35 U.S.C. 103(a) as being unpatentable over Gerstel et al. in view of Fee, Examiner respectfully disagrees with Applicants' assertion on page 32 of their response that the embodiments of the optical switch 204 disclosed by Gerstel et al. "do not transmissively couple an incident optical signal at least to the extent to sufficiently preserve a supplemental signal that includes a modulation applied to the optical signal for taking advantage of the teachings of Fee." On the contrary, it would be well understood in the art that the optical switch element disclosed by Gerstel et al. is a known type of mechanically, electrooptically, or acoustooptically controlled optical switch that provides a transmissive optical pathway between its inputs and outputs—in other words, it transmissively couples a signal incident on an input port to an output port. Such an optical switch would fully preserve the contents of an optical signal transmitted between one of its inputs and one of its outputs, including the optical signal containing two supplemental signals as suggested by Gerstel et al. in view of Fee.

Regarding claims 27-30 and 94-97, rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi in view of Fatehi et al., Examiner respectfully disagrees with Applicants' assertion on pages 32-33 of their response that Fatehi et al. teach away from providing a supplemental signal modifier. Examiner notes that Applicants assert that Fatehi et al. teach modifying signals at a first node of the network, while the switch disclosed by Konishi may be located in the middle of a network. However, the claims recite "a supplemental signal

modifier coupled to the first optical signal port" (wherein the first optical signal port is an input port to the switch); in other words, the claims recite a supplemental signal modifier that is coupled to the input side of a switch and that modifies a signal at some point before it enters a switch. Examiner respectfully notes that such an arrangement is consistent with a suggestion by Fatehi et al. to modify the signal early in its transmission, as in "at a first node" combined with optical switching at a later point in the network.

Examiner also respectfully disagrees with Applicants' assertion that Fatehi et al. only teach a modifier that removes a supplemental signal. On the contrary, Fatehi et al. clearly teach modifying that comprises removing a supplemental signal and then replacing it with a new one or otherwise changing the original supplemental signal (column 4, lines 53-65).

16. Regarding claims 6-8, 10, 11, 47, 48, and 73-75, Examiner respectfully disagrees with Applicants' assertion on page 31 of their response that the combination of Konishi in view of Shiragaki does not suggest the claimed switch. Examiner primarily relies on Shiragaki for providing the general teaching that signals may be detected for faults at a first (input) port of an optical switch and at a second (output) port of a switch in order to better determine a location of a fault (Shiragaki, column 5, lines 60-66). In response to Applicants' argument that Shiragaki does not teach monitoring supplemental signals as exactly disclosed by Konishi, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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